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CLAIMS

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~~13~~. A cold plate assembly for cooling a circuit board assembly, said cold plate assembly comprising:

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a heat pipe assembly including at least one heat pipe adapted for internally circulating a first thermally conductive fluid for carrying heat dissipated from electrical components of a circuit board; and

at least one compact heat exchanger engaging and thermally connected to said heat pipe assembly, said heat exchanger adapted for internally circulating a second thermally conductive fluid and for carrying heat dissipated from said heat pipe assembly.

2 1

~~14~~. The cold plate assembly for cooling a circuit board assembly of claim ~~13~~, said cold plate assembly further comprising:

a thermally conductive base engaging said heat pipe assembly for being affixed to a circuit board, said thermally conductive base including a plurality of recesses sized and configured for receipt of electrical components on a circuit board.

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3 ~~13~~. The cold plate assembly for cooling a circuit board assembly of claim 1 ~~13~~, wherein said compact heat exchanger includes an inlet for receiving said second thermally conductive fluid and an outlet for emitting said second thermally conductive fluid.

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4 ~~14~~. The cold plate assembly for cooling a circuit board assembly of claim 1 ~~13~~ wherein said heat pipe assembly is constructed as a thermal plane including at least one internal heat pipe.

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17. A cold plate assembly for cooling a circuit board assembly, said cold plate assembly comprising:

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a thermally conductive base for being affixed to a circuit board, said thermally conductive base including a plurality of recesses sized and configured for receipt of electrical components on a circuit board;

a heat pipe assembly engaging and thermally connected to said thermally conductive base, said heat pipe assembly constructed as a thermal plane including one or more internal heat pipes, said one or more heat pipes for internally circulating a first thermally conductive fluid for carrying heat dissipated from electrical components of a circuit board; and

at least one compact heat exchanger engaging and thermally connected to said heat pipe assembly, said heat exchanger adapted for internally circulating a second thermally conductive fluid and for carrying heat dissipated from said heat pipe assembly, said compact heat exchanger including an inlet for receiving said second thermally conductive fluid and an outlet for emitting said second thermally conductive fluid.

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~~18~~. A circuit board and cold plate assembly comprising:

a circuit board assembly including electronic components mounted thereon;

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a heat pipe assembly thermally connected to said electronic components, said heat pipe assembly including at least one heat pipe adapted for internally circulating a first thermally conductive fluid for carrying heat being dissipated from said electrical components; and

at least one compact heat exchanger engaging and thermally connected to said heat pipe assembly, said heat exchanger adapted for internally circulating a second thermally conductive fluid and for carrying heat dissipated from said heat pipe assembly.

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~~19~~. The circuit board and cold plate assembly of claim 6 ~~18~~ further comprising a thermally conductive base affixed to said circuit board, said thermally conductive base provided to transfer heat from said electronic components to said heat pipe assembly.

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~~24~~. The circuit board and cold plate assembly of claim ~~18~~ wherein said heat pipe assembly is constructed as a thermal plane including at least one internal heat pipe.

2nd B1

9 6
~~21~~. The circuit board and cold plate assembly of claim ~~18~~ wherein said compact heat exchanger includes an inlet for receiving said second thermally conductive fluid and an outlet for emitting said second thermally conductive fluid.

10 9
~~22~~. The circuit board and cold plate assembly of claim ~~21~~ wherein said heat pipe assembly is constructed as a thermal plane including at least one internal heat pipe.